

**BAAQMD**  
**HEALTH RISK SCREENING ANALYSIS**

Former Unocal Bulk Plant #0519  
2921 Jefferson Street  
Napa, CA 94558

19 February 2003

## **SUMMARY**

This document contains the health risk screening assessment prepared for Former Unocal Bulk Plant #0519 (plant 14660), located at 2921 Jefferson Street in Napa, California. The Bay Area Air Quality Management District (BAAQMD), as a routine part of the evaluation of a permit application, prepared this screening risk assessment.

On behalf of the property owner, Environmental Resolutions, Inc (ERI) wishes to operate a soil vapor extraction and treatment system at this location. This system is designed to clean up gasoline (or hydrocarbon) contaminated soil. Projects such as this typically operate from 6 months up to several years. Once the soil is cleaned up the project is shutdown and equipment dismantled. In order to operate the soil vapor extraction project, the facility must get a permit from BAAQMD. Benzene, a toxic air contaminant and a carcinogen, will be emitted during operation of the facility. BAAQMD staff, as a part of the permit review process, evaluates the possible impact of the benzene emissions that will occur with the operation of the facility.

The benzene impact is expressed in terms of the increased risk of contracting cancer by individuals who live in the impact area. The proposed operation would result in a maximum increased risk of 0.28 chances in a million for residential receptors near the facility, and 0.24 chances in a million to nearby industrial receptors. For the students who attend Napa High School, the maximum increased risk from the proposed operation is 0.0011 chances in a million. For the students who attend McPherson Elementary School, the maximum increased risk from the proposed operation is 0.00017 chances in a million. These results are presented in Table 1.

The screening methods used by BAAQMD to estimate risk are based on a "worst-possible" estimate of the operating conditions for the facility. This type of analysis is considered to be health-protective.

**TABLE 1**

<b>Executive Summary Carcinogenic Risks</b>	
<b>Maximum Cancer Risk</b>	
<b>Residential Receptor</b>	<b>Industrial Receptor</b>
0.28 chances in a million	0.24 chances in a million
<b>Napa High School</b>	<b>McPherson Elementary School</b>
1.1E-3 chances in a million	1.7E-4 chances in a million

*(The estimates of residential risk assume that individuals are in continuous residence during a 70-year lifetime. Estimates of industrial risk assume that an off-site worker is exposed 8 hours/day, 245 days/year for 40 years. The estimates of risk at the school assume that children are in attendance 10 hours/day, 180 days/year, for 9 years.)*

School addresses: Napa High School  
2475 Jefferson Street  
Napa, California 94558

McPherson Elementary School  
2670 Yajome Street  
Napa, California 94558

**Risk Screening Assessment for Application 5796**  
**Former Unocal Bulk Plant # 0519, Napa**

I. Introduction

The BAAQMD Staff Risk Management Policy (3 February 2000) states that a written risk screening analysis is to be prepared for any application for a new source of toxic emissions, or for any application for increased toxic emissions from a modified existing source.

II. Facility Description

<b>Plant Name:</b>	Former Unocal Bulk Plant # 0519
<b>Location:</b>	2921 Jefferson Street Napa, CA 94558
<b>Type of Operation:</b>	Soil Vapor Extraction and Treatment System
<b>Plant #:</b>	14660
<b>Application #:</b>	5796

III. Exposure Assessment

The toxic air contaminant of concern at this facility is benzene, a carcinogen. Benzene is emitted as a result of the soil vapor extraction and treatment process. The estimated emission rate and annual emissions of benzene that can be expected from this facility are shown in Table 2.

Ambient air concentrations of benzene were predicted using the ISCST-3 air dispersion computer model. This model uses information about the facility and the emission rates of toxic air contaminants to estimate what concentrations would be expected in the air around the site. The estimated maximum concentrations of benzene are shown in Table 3.

IV. Risk Assessment

The estimated concentrations of benzene are used to calculate the possible carcinogenic risks that might be expected to arise from these exposures. The results are presented in Table 4. In the case of benzene, the risk is due solely to inhalation exposure.

These potential risk values were calculated using standard risk assessment methodology. They include the assumptions that residents are present in their homes 24 hours/day, 7 days/week for 70-years; off-site workers are present 8 hours/day, 245 days/year for 40 years; and the school students are present 10 hours/day, 180 days/year, for 9 years.

The risk values are based in part on the "best estimates" of plausible cancer potencies as determined by the California Office of Environmental Health Hazard Assessment (OEHHA). The actual value of risk, which cannot be determined, may approach zero.

**TABLE 2**

<b>Pollutant Emissions</b>			
<b>Pollutant</b>	<b>Maximum Emission Rate (gm/sec)</b>	<b>Maximum Annual Amount (lb/year)</b>	<b>Source of Emission(s)</b>
Benzene	3.4E-05	2.3	Soil vapor extraction and treatment system

**TABLE 3**

<b>Annual Average Benzene Concentration in Ambient Air (<math>\mu\text{g}/\text{m}^3</math>)</b>			
<b>Maximum Residential Exposure</b>	<b>Maximum Industrial Exposure</b>	<b>Napa High School Exposure</b>	<b>McPherson Elementary School Exposure</b>
9.6E-3	6.2E-2	7.0E-4	1.1E-4

**TABLE 4**

<b>Maximum Individual Carcinogenic Risk Resulting from Inhalation Exposure to Benzene</b>			
<b>Residential Receptor</b>	<b>Industrial Receptor</b>	<b>Napa High School Receptor</b>	<b>McPherson Elementary School Receptor</b>
0.28 chances in a million	0.24 chances in a million	1.1E-3 chances in a million	1.7E-4 chances in a million